Fruit Growers' News-Letter

April 1 9 3 7

Note

This News-Letter is published in place of the April issue of The Maryland Fruit Grower, as it was decided by the Executive Committee of The Maryland State Horticultural Society, in 1936, to issue three monthly editions during the year, as News-Letters, and nine printed editions.

New Bulletins

Bulletin 363 of Missouri Agricultural Experiment Station, Columbia, Missouri, entitled "Fertilizing Fruit Trees with Nitrogen" deals with a general discussion and recommendations regarding nitrogen fertilizers as applied to the orchard. An interesting table is shown in this bulletin giving the nitrogen loss and needs of a 20 year old apple tree. The figures are expressed in pounds of fertilizer containing 20-21% nitrogen, and run as follows:

Nitrogen	removed with fruit crop	2.0 lbs.
"	removed by pruning	.5
"	loss from autumnal dropping of leaves . .	2.0
"	loss from dropping of flowers and young fruits	.3
"	required for maintenance (growth) . . .	1.0
	Total .	5.8 lbs.
"	return to tree from decay of flowers, fruits, leaves .	1.2
	(Net requirement to be applied) . .	4.6 lbs.

Missouri Bulletin 379 (address given above) entitled "Pollination and Fruit Setting", gives interesting data on general fruit pollination. It shows that there are four different drops in the apple, the first two being grouped together as the "first drop", and the last two constituting the "June drop". These drops occur at approximately 2 week intervals. While information as to the causes of these drops is incomplete, the first drop is known to be that of flowers that lack pollination or some that are self-pollinated. The second drop composed of small fruits, is evidently due to embryo weakness and poor growth of the fruit, due to faulty nutrition. The third and fourth drops are composed of fruits about ½ to 1 inch in diameter, and is believed to be due to poor food supply and competition for food, by the various fruits. Individual limbs and branches will differ in the amount of drop at this time. Very often the grower worries about the June drop, but overlooks the earlier drops which may have been heavier. Judicious use of nitrogen fertilizer and provision for pollination by bees, are recommended as a help in control of fruit drop.

Pollination

New facts are being found each year, regarding fruit set and pollination. In Missouri Bulletin 379, we find that PEARS have pollination problems. Seckel and Bartlett seem to be inter-sterile, and will not pollinate each other. Tyson and Flemish Beauty are self-fruitful. Kieffer, Seckel and Bartlett should be interplanted, and Garber does well if cross-pollinated. Among APPLES, the Grimes

and Black Twig are the only known inter-unfruitful varieties that will not pollinate each other. Among PEACHES, the J. H. Hale and possibly the Late Crawford, and Georgia Belle are self-unfruitful. June Elberta (Mikado) was found to be self-unfruitful at the Maryland States, several years ago. In the April 10, 1937, "Rural New Yorker", Dr. H. B. Tukey reports that Mikado, Halberta and Candoka are self-unfruitful. SOUR CHERRIES (it is now better form to call them RED cherries) are self-fruitful, but better interplanted. It is further stated in Missouri Bulletin 379, that DUKE CHERRIES are hybrids, and such varieties as May Duke, Royal Duke, or Lake Duke are self-unfruitful, and should be interplanted with sour cherries. SWEET CHERRIES are not only largely self-unfruitful, but some varieties are intersterile, and it is well to be sure that proper varieties are planted for good pollination. PLUMS such as the Damson, Monarch, Yellow Egg, and the French, Italian, and German prunes are apparently self-fruitful. The native plums are mostly self-sterile, and the Japanese types such as Gold, Abundance, Burbank, and Red June are self-sterile to various degrees, as are also some of the European plums. It is best to interplant any kind of plums. In general, GRAPES are self-fruitful, as far as the main commercial varieties, such as Moore's Early, Niagara, Concord, Catawba, Worden or Delaware are concerned. There are some self-sterile varieties, and less-known varieties should be interplanted with any of the above varieties. Among the CANE FRUITS there are few cases of self-unfruitfulness, excepting among the purple cane raspberries.

Another interesting phase of the pollination problem is discussed by A. E. Murneek of Missouri. He states that it has been estimated that a single apple blossom may produce 70,000 to 100,000 pollen grains, and that a bee may carry as many as 50,000 to 75,000 pollen grains on its body. It requires about 10 pollen grains to pollinate completely, one apple blossom. Dr. H. B. Tukey of Geneva, (N. Y.) Experiment Station, states that Delicious and Starking are the best pollen producers, with Grimes and Golden Delicious in the second highest group, and Cortland, McIntosh, Wealthy, Williams in the low group. Delicious contained as high as 9,675 pollen grains in a single pollen anther, and an average of 7,906 pollen grains per anther. There are usually 15 to 20 anthers per apple flower. Jonathan flowers may have as many as 6,899 pollen grains per flower.

We do not place much faith in pollen being blown around by the wind. In fact, some people think that there is no pollination due to wind. Mr. H. D. Hootman, of University of Michigan, writing a continued article on pollination, in "Wisconsin Horticulture", reports some trials where sour cherry trees were screened during blossoming season, excluding all insects. In three sections of Michigan, screened trees yielded 2¼, 4, and 3½ lbs. of fruit, respectively, while insect-pollinated trees in these same locations yielded 44, 44 and 150-200 lbs. respectively.

Heat and Scab

Dr. H. W. Anderson, Horticultural Department, University of Illinois, after investigating heat effects on scab, reports in November, 1936, "Illinois Horticulture": "It does not seem possible that high temperatures or lack of moisture during the summer months can eradicate scab from any region where it has become established in the spring. It is interesting to note that scab is developing this Fall, on the undersides of the leaves in those orchards which were not sprayed, or where sprays were applied at the wrong time, while in orchards which were properly sprayed, no scab can be found, even though spraying

was discontinued shortly after petal fall." This statement was made after the collection and examination of leaves gathered after 18 days of drought, with temperature over 100 and as high as 108, one day, only being as low as 97.

Vigor and Cold Weather Injury

Dr. G.M. Darrow, of the U.S. Bureau of Plant Industry has reported that well-fed raspberry plants can stand cold winter weather, while plants that go into the winter, weakened by disease or insect injury are likely to be winter-injured. He noted that some raspberry varieties that are hardy in Canada, were winter-injured in Maryland, and suggested that growers will have to spray to keep fungous diseases controlled in the raspberry planting, during the summer.

Water Supply

A recent bulletin (Cornell Extension Bulletin No. 367, Feb . 1937) published at Cornell University, Ithaca,N.Y., discusses "Water Supply for Orchards" in a very interesting way. Such things as size of pumps, kinds of pumps, size of reservoir, source of water, water tanks, horse power required, pipe friction, etc., are considered. This is of value to the grower who is considering changes in water supply for the orchard.

Soil Moisture Capacity

We have heard about moisture-holding capacity of soils, and we have tried to "pump in" our soils with organic matter. In "North and South Dakota Horticulture" we read that A.J. Pratt, reported in Gardner's Chronicle that 100 pounds of sand will adsorb 25 pounds of water; 100 pounds of clay will adsorb 50 pounds of water; while 100 pounds of organic matter (humus) will absorb 190 pounds of water.

Fruit Growers' Tour

Again, we remind the fruit growers of the tour to be conducted by the American Pomological Society. Write Mr.J.T. Bregger, 309 W. Main Street, Waynesboro, Pa., for full particulars. This is a chance for a fine economical, educational trip through the main fruit section of the West. Special train: private cars: good company. You'll enjoy it.

Cold Storage Holdings

The U.S. Bureau of Agricultural Economics reports that on April 1,1937 there were 52,000 barrels of apples in storage; 4,580,000 Western boxed apples, and 2,647,000 bushels in baskets, Eastern boxes or crates. On March 1, 1937 (one month ago) the figures were 120,000 barrels; 6,809,000 Western boxes and 5,021,000 bushels Eastern boxes and crates. On April 1, 1936 (one year ago) the holdings were 205,000 barrels; 6,052,000 Western boxes and 4,540,000 bushels, Eastern boxes and crates.

Another Bulletin

Bulletin No. 403 "Strawberry Fertilizer Studies in Maryland" is just off the press. It may be had free by writing University of Maryland Agricultural

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Station, College Park. This bulletin gives some interesting conclusions in regard to use of fertilizers on strawberries, following field experiments on Eastern Shore.

Treatment of Winter Injury

In Michigan Quarterly Bulletin, Vol.19, No. 3, February 1937, published by Michigan Agricultural Experiment Station, East Lansing, Dr. F.C. Bradford discusses three types of winter injury. First, there is the "southwest" injury caused by heating and freezing of the bark, during the bright days of winter. The treatment of this injury consists of cutting out the dead bark, lining the edges of the bark with a coating of grafting wax, and painting the exposed wood with good white lead paint or tree paint. Another type of injury is developement of long cracks in the bark. This type of injury usually takes care of itself. The third type of injury is apparently caused by accumulation of sap under the bark, so that when it freezes the bark bursts. Cold winds have an influence, in causing the freezing of the bark. Dr. Bradford shows by photographs that where the bark peels back in flaps, it is best to tack it down, so as to hasten the healing that takes place on the inside surface of the bark. In some cases, it was shown that peach bark which froze, but did not burst, separated from the wood, and healed up in time, even though it had once been hollow under thebark.

Soil Acidity and Fruit Trees

"Fertilizer Review", March -April 1937, containing an article by M.F. Morgan, of Connecticut, states that in lime requirements for fruit trees, we must consider the soil between the trees and its ability to grow cover crops. Figuring soil acidity in Hydrogen Ion concentration, and considering 7.0 as a neutral soil, with figures below that, showing degrees of acidity, hegives the following ranges of acidity tolerance for fruits: Currant and Quince: 5.8 to 7.2; pear 5.6 to 7.2; gooseberry 5.6 to 7.0; apple and grape 5.4 to 6.8; peach and red raspberry 5.2 to 6.8; black raspberry 5.0 to 6.6; strawberry 5.0 to 6.2; blueberry 4.4 to 5.6.

Thin Transparent apple early and heavy, for size. Better begin early, on any thinning, if possible.

Extension Service,
University of Maryland.

A.F.Vierheller,
Extension Horticulturist.